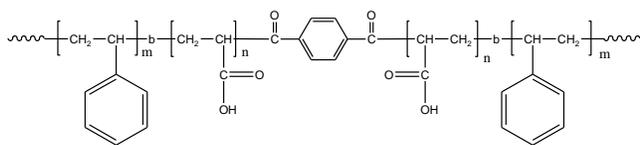


Sample Name:

Poly(Styrene-*b*-acrylic acid-*b*-Styrene)

Sample #: P8870-SAAS

Structure:

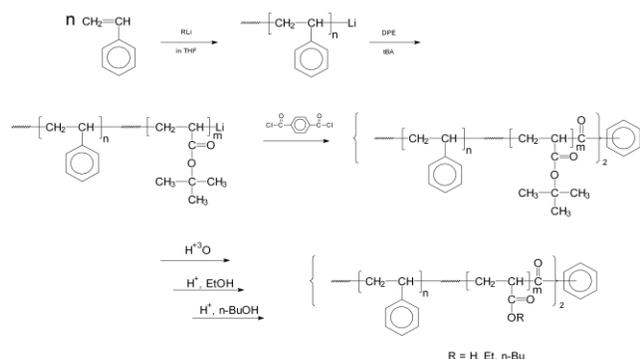


Composition:

Mn x 10 ³ (S- <i>b</i> -AA- <i>b</i> -S)	PDI
3.0- <i>b</i> -8.0- <i>b</i> -3.0	1.35
T _g for PS block:	103°C
T _g for AA block:	129°C

Synthesis Procedure:

Poly(styrene-*b*-tert. butylacrylate-*b*-styrene) is prepared by living anionic polymerization. The details are available in the cited reference. The scheme of the reaction is illustrated below:



Characterization:

The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector.

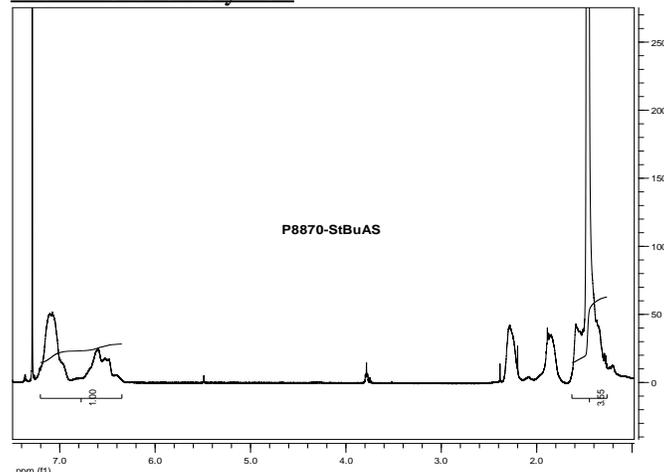
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

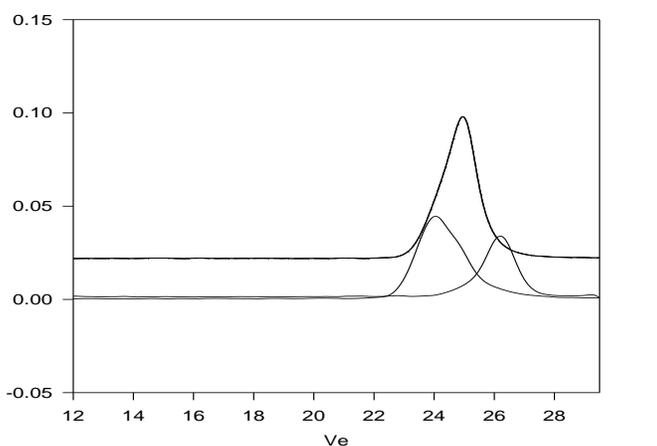
Polymer is soluble in THF, toluene and CHCl₃. It precipitates from methanol, ethanol, water and hexanes (depending on the compositions).

¹H NMR of the Polymer:



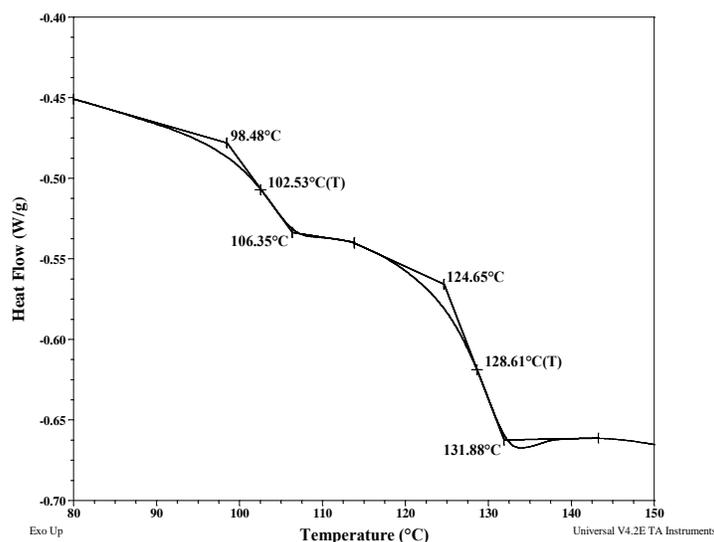
SEC of Sample:

P8870-StBuAS for SAAS



Size Exclusion Chromatography of:
— PS, the first PS block, M_n=3000, PI=1.19
- - - PStBuA, the diblock PS(3000)-*b*-PtBuA(8000), PI=1.19
— StBuAS, the triblock PS(3000)-*b*-PtBuA(16000)-*b*-PS(3000), PI=1.25
After hydrolysis of tert.butylacrylate
PS(3000)-*b*-AA(8000)-*b*-PS(3000) PI: 1.35

DSC thermograms for the sample:



Reference:

S.K. Varshney, P. Kesani, N. Agarwal, J. Xin. Zhang, and M. Rafailovich. Synthesis of ABA type thermoplastic elastomers based on Polyacrylates, *Macromolecules*, 1999, 32,235.